

Listing of Claims:

1. (Currently Amended) A flow-through assay device for detecting the presence or quantity of an analyte residing in a test sample, said flow-through assay device comprising a porous membrane, said porous membrane being in communication with detection probes and calibration probes, said detection probes having a net charge and being conjugated with a specific binding member for the analyte, said porous membrane defining:

a detection zone within which is immobilized a first capture reagent, said first capture reagent being configured to bind to at least a portion of said conjugated detection probes or complexes formed between the analyte and said conjugated detection probes to generate a detection signal having an intensity;

a compensation zone located downstream from said detection zone, wherein a polyelectrolyte is immobilized within said compensation zone, said polyelectrolyte having a net charge opposite to that of the detection probes, said polyelectrolyte being configured to bind to said conjugated detection probes and complexes formed between the analyte and said conjugated detection probes passing through said detection zone to generate a compensation signal having an intensity, wherein the intensity of said compensation signal is inversely proportional to the intensity of said detection signal;
and

a calibration zone within which a second capture reagent is immobilized, said second capture reagent being configured to bind to said calibration probes to generate a calibration signal that is substantially constant in intensity relative to the intensities of

said detection signal and said compensation signal, said calibration zone being positioned between said detection zone and said compensation zone;

wherein the amount of the analyte within the test sample is proportional to the ratio of said detection signal intensity to said compensation signal intensity, as calibrated by said calibration signal intensity.

2. (Original) A flow-through assay device as defined in claim 1, wherein said conjugated detection probes comprise a substance selected from the group consisting of chromogens, catalysts, luminescent compounds, radioactive compounds, visual labels, liposomes, and combinations thereof.

3. (Original) A flow-through assay device as defined in claim 1, wherein said conjugated detection probes comprise a luminescent compound.

4. (Original) A flow-through assay device as defined in claim 1, wherein said conjugated detection probes comprise a visual label.

5. (Original) A flow-through assay device as defined in claim 1, wherein said specific binding member is selected from the group consisting of antigens, haptens, aptamers, primary or secondary antibodies, biotin, and combinations thereof.

6. (Original) A flow-through assay device as defined in claim 1, wherein said first capture reagent is selected from the group consisting of antigens, haptens, protein A or G, neutravidin, avidin, streptavidin, captavidin, primary or secondary antibodies, and complexes thereof.

7-8. (Cancelled)

9. (Previously Presented) A flow-through assay device as defined in claim 1, wherein said polyelectrolyte has a net positive charge.

10. (Original) A flow-through assay device as defined in claim 9, wherein said polyelectrolyte is selected from the group consisting of polylysine, polyethyleneimine, epichlorohydrin-functionalized polyamines or polyamidoamines, polydiallyldimethylammonium chloride, cationic cellulose derivatives, and combinations thereof.

11. (Previously Presented) A flow-through assay device as defined in claim 1, wherein said polyelectrolyte has a net negative charge.

12. (Previously Presented) A flow-through assay device as defined in claim 1, wherein said second capture reagent comprises antigens, haptens, protein A or G, neutravidin, avidin, streptavidin, captavidin, primary or secondary antibodies, or complexes thereof.

13. (Original) A flow-through assay device as defined in claim 1, wherein the device is a sandwich-type assay device.

14-38. (Cancelled)

39. (Previously Presented) A flow-through assay device as defined in claim 1, wherein the polyelectrolyte is ionically bonded to a functional group present on the surface of the porous membrane.

40. (Previously Presented) A flow-through assay device as defined in claim 1, wherein the polyelectrolyte is covalently bonded to a functional group present on the surface of the porous membrane.

41. (Previously Presented) A flow-through assay device as defined in claim 40, wherein the polyelectrolyte is crosslinked to the functional group.

42. (Previously Presented) A flow-through assay device as defined in claim 1, wherein the detection probes comprise latex microparticles.

43. (Previously Presented) A flow-through assay device as defined in claim 1, wherein the compensation zone is generally free of biological capture reagents.

44. (Previously Presented) A flow-through assay device as defined in claim 1, wherein said specific binding member includes an antibody.

45. (Previously Presented) A flow-through assay device as defined in claim 44, wherein said first capture reagent includes an antibody.